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ARE STATEWIDE DATA SYSTEMS MEETING THE LOCAL INSTITUTION'S NEEDS?

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Paper Presented to the Annual Forum
of the Association for Institutional Research
Houston, Texas
May, 1978

Abstract

Statewide data collection systems emerged in the late sixties as the vehicle to achieving greater efficiency and accountability in higher education. The expectations of statewide systems were that they would meet the needs of various levels of management. The example presented in this paper is the Georgia management information system and its impact upon one of the thirty-three institutions involved. The example is typical of the development of similar systems in other states and the experience of many post-secondary institutions. Several central issues are discussed which warrant attention, especially by academic affairs officers, if these statewide systems are to fulfill the needs of the local institutions and justify their resource commitment.

Are Statewide Data Collection Systems Meeting the Local Institution's Needs?

Under the pressure of severely limited resources, institutions of higher education find it necessary to examine carefully all phases of their operations to insure maximum benefits at minimum expense. One attempt to improve the use of resources was the instituting of statewide management information systems (MIS) by higher educational boards to provide timely, concise information to aid in the decision-making process. The expectations of state higher education MIS's were that they would meet the needs of various levels of management, i.e., institutions, governing board, legislature, governor, as well as federal and various non-government entities. The aim of this paper is to view these systems from the institutional perspective. In this economy-conscious era, the strengths, weaknesses, and possibilities of statewide data collection are believed to be practical considerations deserving attention by policy and decision makers as well as policy and operations analysts.

The problems of implementing management systems in higher education are numerous. Although many college administrators want to make use of management science techniques to assist them in operating their organizations, they seem to lack a systematic rationale for applying such techniques in their specific organizations (Adams, Kellogg, & Schroeder, 1976). Because of the inherent difficulties of such systems--conceptualizing, implementing, and assessing the costs and benefits--administrators appear reluctant to commit themselves actively to management systems. While elegant management systems may look impressive, if they are not properly understood and operated so as to fulfill the needs of management at all levels, the investment in

time and resources is questionable. In view of the enormous costs associated with MIS, both in terms of the capital outlay for data processing equipment, software, and the costs of continuing operations for salaries and maintenance, any statewide management system merits careful scrutiny to insure economic feasibility at the institutional level as well.

Statewide Management Information System

The process of examining the impact of Georgia's statewide management system on the decision-making process of local institutions is a search for ways to make statewide systems more effective and economical. From the perspective of the author's personal experience with MIS in industry, government, and higher education, the positive and negative effects of Georgia's statewide MIS upon Georgia State University bear a striking similarity to the problems and benefits encountered by other institutions of higher education under the impact of their respective statewide MIS (Adams, Kellogg & Schroeder, 1976; Balderston, 1974; Bogard, 1972; Braniff, 1977; Jones, 1977; Laughlin, 1975; McGovern, 1975; Meisinger & Purves, 1975; Norris & Heydinger, 1975; Schroeder & Adams, 1976; Smith, 1975; Tetlow & Chase, 1976). It is reasonable to assume, therefore, that the benefits and liabilities noted at this institution are similar to those encountered by other institutions in the University System of Georgia. A visual statement of the scope of this state system is displayed in Figure 1. These institutions vary from small community colleges to large complex universities.

Insert Figure 1 about here

Before discussing the specific benefits and liabilities of the statewide MIS in this paper, it would be useful to review the organization and management of higher education in Georgia, as well as to provide a brief description of the MIS. Public postsecondary institutions in Georgia are governed,

controlled, and managed by one central statewide board. This board, a public corporation and a constitutional body, receives the total lump-sum appropriation as set by the legislature and then makes internal allocations to the individual institutions as the board deems appropriate. This brief description of the board's authority is given to provide the reader with an understanding of its position to make MIS work.

Figure 2 illustrates the organization of higher education in Georgia as it relates to the statewide system.

Insert Figure 2 about here

The impact of the statewide MIS on the operations of the participant institutions is determined in part by the inconsistent organizational and decision-making structures of various postsecondary institutions in the state system (Bryson & Smith, 1978). These organizational structures as charted by the institutions vary widely because these structures have evolved to reinforce unique goals and values of the autonomous institutions and to support differing leadership styles of the presidents. It is important to consider these great differences in institutional organization because the success or failure of any MIS rests upon its own capacity to adapt to the needs of many pre-existing decision-making processes (Schroeder & Adams, 1976).

The Consolidated Reporting System (CRS)

The Consolidated Reporting System (CRS) is comprised of an interdependent set of five reports which present a dynamic view of each institution's academic activities, personnel, and physical resources. Bryson & Smith (1978) charted the basic flow concept of the CRS. The reports submitted to the CRS follow:

1. Personnel Inventory Report (PIR). This report, maintained on a continuing basis, provides the state board with an inventory of

the personnel employed by the institution. For each individual employed in selected job classifications (job titles), the system reports basic personal information, budget department and position, title, and source of funding. The PIR information provides the state board with a continuing and detailed picture of the university's personnel resources.

2. Faculty Assignment Report (FAR). Encompassing personnel in many job titles beyond the academic faculty, this report basically indicates what the individual's job assignments are by category and time (instruction, research, public service, and administration). The report, completed and certified by the immediate supervisor on a quarterly basis, details the individual assignment of personnel resources by task category.
3. Curriculum Inventory Report (CIR). Submitted on a quarterly basis, this report presents a profile of every class section for which students are registered for academic credit.
4. Facilities Inventory Report (FIR). In this report the physical space available for use within the university is described in minute detail as to characteristics, facilities, and spatial dimension.
5. Room Utilization Report (RUR). For each class section in which students are registered, this report indicates the rooms and times scheduled.

This comprehensive set of five reports as outlined above provides an abundance of summary and detail information to the board of control regarding the operational activity of the institution. Analysis of university data, along with that from the other institutions in the Georgia system, not only provides summary information at the state level, but also allows detailed comparisons between institutions of academic schools, departments, and individuals. How well personnel resources are distributed and utilized can

readily be ascertained through matching the detailed data of the PIR, the FAR, and the CIR. Similar analysis between the CIR, the RUR, and the FIR reveals the efficiency with which physical resources are allocated and used. The reports enable teaching workloads to be examined and compared at levels of institution, academic school, department, discipline within department, rank, and by individual.

Perceived Strengths to Date

Many strengths and positive aspects of this information systems approach to management are noted particularly as they benefit the state authorities. These observations are believed to be applicable to most state systems.

1. The experience and expertise of individuals from many areas of a state higher education system have been incorporated into the preliminary design phase.
2. Intra- as well as inter-institutional analyses can and are being made so as to provide comparative information regarding the operational practices from institution to institution as well as what is happening within each institution. This information is now being used to assess the annual budgetary needs of each institution.
3. Various types of data (personnel, faculty, curriculum, room assignment, facilities) are cross-matched to isolate inconsistent practices and identify potential operational problems in the institutions.
4. Funds to support the statewide data collection have enabled one university in the state to have one of the most sophisticated educational computer installations in the nation.
5. The commitment by the state board to enter into the development of a comprehensive management system has resulted in the building of a highly competent and versatile systems design group as well as organizing operational personnel at the state level.

For the most part, the benefits of Georgia's statewide MIS have accrued to the governing board. However, the impact of the statewide MIS upon the university has produced several residual benefits.

1. Because of the demands by the statewide MIS for uniform information which does not conform to institutional sub-areas of responsibility, a major benefit is the increase information flow within the university. As a consequence, greater awareness of and appreciation for each others' unique operational problems has arisen.
2. Another benefit is the creation of more uniform and available data which has greatly facilitated the conducting of institutional research and self-examination.

Institutional Data Flow

The statewide MIS assumes a traditional administrative pyramid exists with authority concentrated in the hands of central administrators. "Instead, universities are really 'horizontal structures' in which authority is widely dispersed among highly trained professionals and special interest groups who bargain multilaterally with one another to influence the decision-making process" (Moore, 1976, p. 3). Table 1 illustrates the interdependence and interaction of the five subsystems of the CRS on the organizational entities at this particular institution. Note how the data flow criss-crosses many organizational areas and authority lines while intertwining numerous subordinate offices.

Insert Table 1 about here

At this university the institutional research and planning office has been designated to transmit the bulk of the data to the state board. This office neither generates nor maintains any of the data required for the

reports. Instead, the office performs a clearing-house function (Bryson, 1977). Analyses regularly performed by institutional researchers on university data, apart from the state system, provide insight into the interdependence of data elements. Although the computerized records of each major area are used in the preparation of these reports, a tremendous amount of cross-checking and adjustment is still necessary as a part of the clearing-house function to provide minimum basic data required by the board. The extent of this effort demonstrates the need to develop further standardization and consistent recordkeeping procedures at the institutional level.

Figure 3 demonstrates how the data flow of one of the sub-systems is accomplished as input to the statewide MIS. Note what is required to input

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Insert Figure 3 about here

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the data from the institutional level and what the institution receives in return. A tremendous amount of raw data has flowed upward to the state level, yet scant information has flowed downward as output to the institutions. Summary and comparative information compiled at the state level, as yet, has not been received within an adequate time frame for institutional management applications. At present, summary information based on the CRS is only received many months after the end of the fiscal year. It should be observed that prior to dissemination of the summary information from CRS, institutions are required to furnish an annual report to the board of similar information apart from the CRS.

Expectations Versus Reality

The Georgia MIS was expected to serve the needs at various levels, i.e., institutions, governing board, legislature, governor, as well as federal and various non-government entities. In the author's opinion, neither the impact of this management reporting system upon the decision-making structure of

this institution nor its benefits in evaluation and long-range planning has been realized to date. A tremendous amount of raw data has flowed upward to the state level, yet scant information has flowed downward to the institutional level in return. Summary and comparative information compiled at the state level, as yet, has not been received within an adequate time frame for institutional management applications.

A two-way communications link between information systems (either at the state level or within the institution) and the institutional decision-making process is of paramount importance. During the preliminary design phase of these centralized systems, there has been little exploration of the impact of such undertakings upon the operation of the individual institution. Although institutions have opportunity for input into state-level task force activities, it is unlikely that a single institutional representative could foresee the ramifications of a statewide system upon the many operational areas of an institution. The level of the state board's commitment to the implementation of these centralized systems is already evidenced by the investment of funds into massive software and hardware at one installation.

Centralized, computerized information-gathering systems are powerful managerial tools which can be of benefit to higher management in Georgia, but they can also subvert the efficiency of the lower level management function if the information is not continuously shared with those officials directly responsible for institutional operations. One step in the right direction is the enlistment of individuals from institutional research offices in an advisory capacity to the state-level governing board as it seeks to establish data definitions and standardize procedures for interpreting the data. This is because institutional researchers have been instrumental in identifying weaknesses inherent in the state-level management information system stemming from inappropriate use of inadequately defined

data originating in 33 separate institutions. Particular emphasis has been focused on faculty workload and curriculum information. Although the system data appear to have great potential for analysis, unless given adequate attention, institutional differences reflected in the data may prevent the state MIS from producing consistent and usable reports.

The chief academic officers at both the state and institutional levels are the key personnel to the problem solution and they should not abrogate their MIS responsibilities (Moore, 1976). Because of other pressures academic affairs officers have too frequently delegated MIS responsibility to financial affairs personnel and/or computer systems analysts. Both of these groups can assist but neither has the total problem perspective and authority level needed to resolve the issues.

It is obvious that the Georgia MIS has the capacity to capture a lot of numbers, but it seems to fall short in supplying the internal needs of the individual institutions on a timely basis. For a statewide data collection system to be economically sound, the system should have the capacity to serve the individual institutions as well as the state board. Further, MIS needs to be incorporated into the decision-making process at both the state and local levels if the effort and expense are to be justified.

In summary, statewide data collection systems emerged in the late sixties as the vehicle to achieving greater efficiency and accountability in higher education. The expectations of statewide systems were that they would meet the needs of various levels of management. The example presented in this paper is the Georgia management information system and its impact upon one of the thirty-three institutions involved. The example is typical of the development of similar systems in other states and the experience of many postsecondary institutions. Several central issues were discussed which warrant attention, especially by academic affairs officers, if these statewide systems are to fulfill the needs of the local institutions and justify their resource commitment.

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FIGURE 1

The University System of Georgia

Source: Annual Financial Report University System of Georgia

FIGURE 2

ORGANIZATION

OF HIGHER EDUCATION

IN THE STATE OF GEORGIA

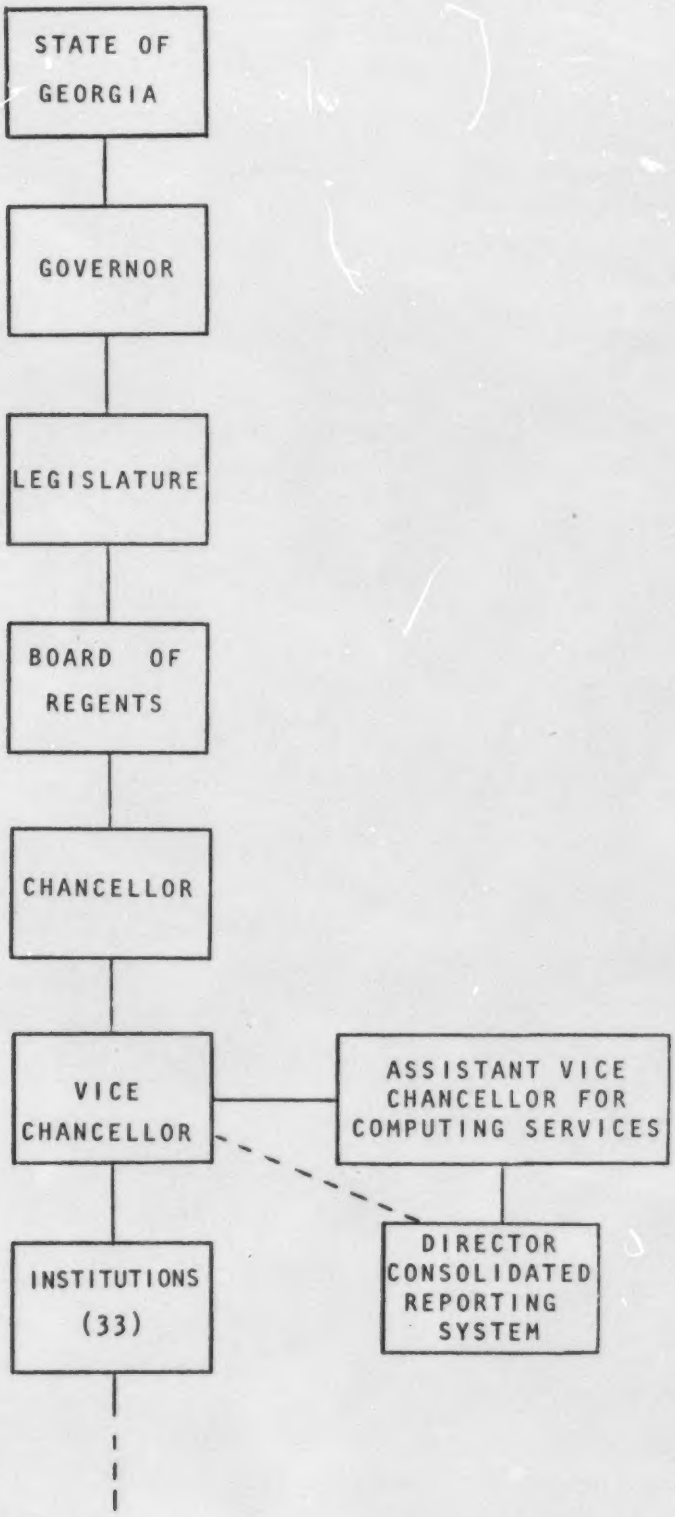


TABLE 1

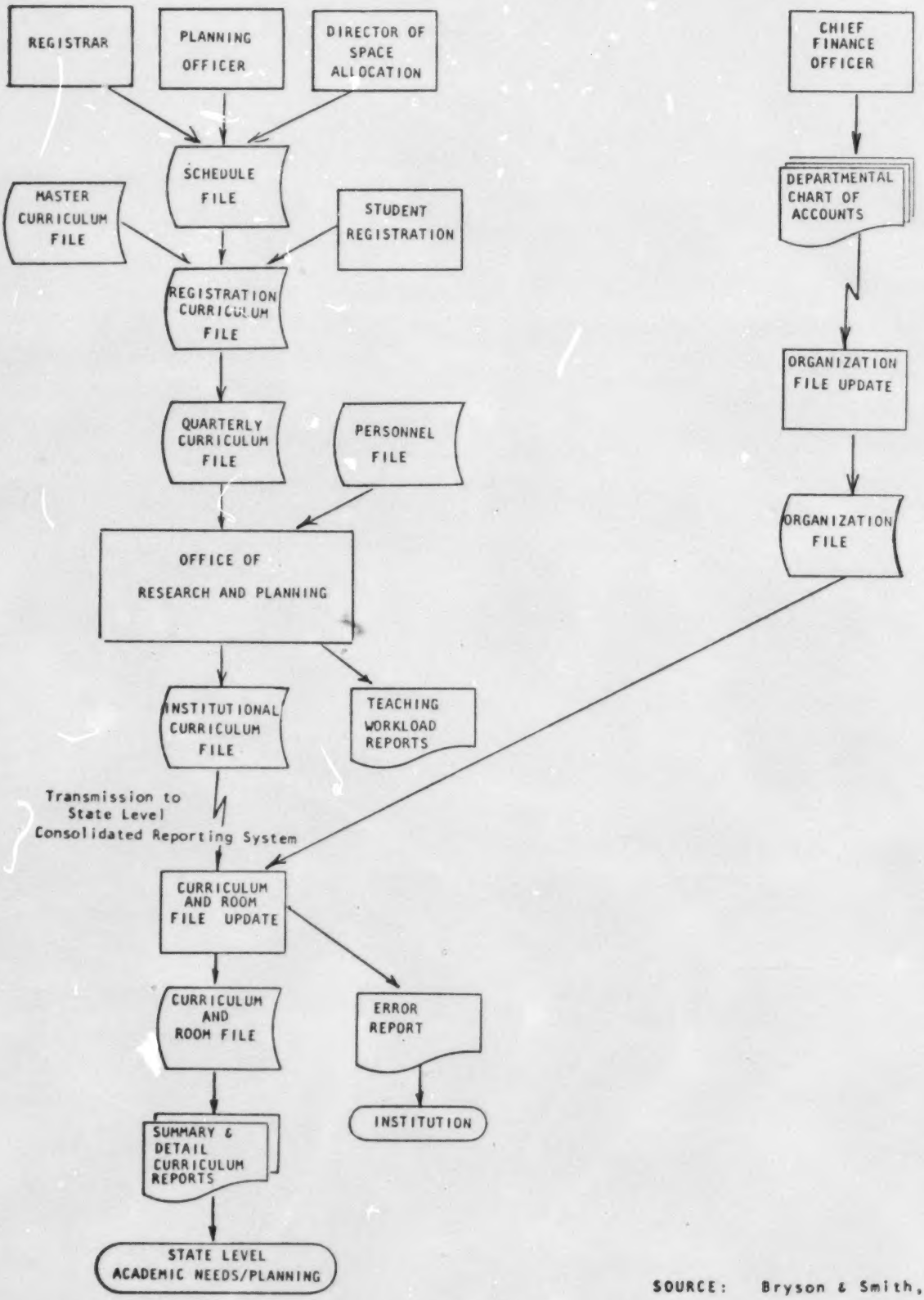
INSTITUTIONAL DATA FLOW TO A
STATEWIDE HIGHER EDUCATION MANAGEMENT INFORMATION SYSTEM

Office/Area	Consolidated Reporting System				
	Personnel Inventory	Faculty Assignment	Curriculum Inventory	Facilities Inventory	Room Utilization
President					
Executive VP		0			
VP - Academics		0			
Academic Deans (6)		0			0
Academic Directors (2)		0			0
Department Chairmen (54)		0			0
Academic Directors (2)		0			0
Librarian		0			
VP - Finance		0			
Treasurer					
Payroll	0				
Comptroller					
Personnel	0				
Admin. Services	E				
VP - Student Life		0			
Registrar			0		0
Associate VP - Academic Services		0			
Academic Services	ET				
Assistant VP - IR & Planning, & Institutional Coordinator CRS		0			
Director - Space Utilization				OET	OET
Reports Coordinator	C	CET	CET	C	C

0 - data origination
E - editing & content monitoring
C - coordination
T - transmits to state

FIGURE 3

CURRICULUM INVENTORY REPORT



SOURCE: Bryson & Smith, 1978.